



INTERMOUNTAIN POWER SERVICE CORPORATION

September 6, 2005

Mr. Joel Vatsky
Advanced Burner Technologies
P.O. Box 410
271 Route 202/206
Pluckemin, NJ 07978

Dear Mr. Vatsky:

Dissatisfaction with ABT Opti-Flow Burners in IGS Unit 2

This letter is to express the dissatisfaction of Intermountain Power Service Corporation with the performance of ABT's Opti-flow burners that were installed on Intermountain's Unit 2 in the spring of 2004. We are holding ABT at least partially culpable in the recent failure of the Unit 2 F3 burner module and request ABT's assistance in resolving our concerns.

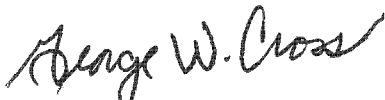
The thermowell design supplied on your burner modules precludes the use of heavy-duty thermocouples (TC's). The bend radius is too tight to allow insertion of the 1/4 inch TC's we specified. The 1/16 inch TC's supplied with the burners are failing prematurely. We are convinced that lack of instrumentation, which would have warned us of a burner fire, contributed to the failure on F3.

We are also experiencing premature wear-related failure of some of our x-vane fuel distributors and elbows at the burner inlet. These failures are unacceptable, especially in burners that are only a little over a year old.

We have suspended plans to replace burners on Unit 1 until we can get these issues resolved. We are requesting assistance from ABT in investigating the cause of these failures and in making them right.

Please contact Mr. Dean Wood at (435) 864-6464 with questions regarding these claims or to set up a plant visit to resolve these issues.

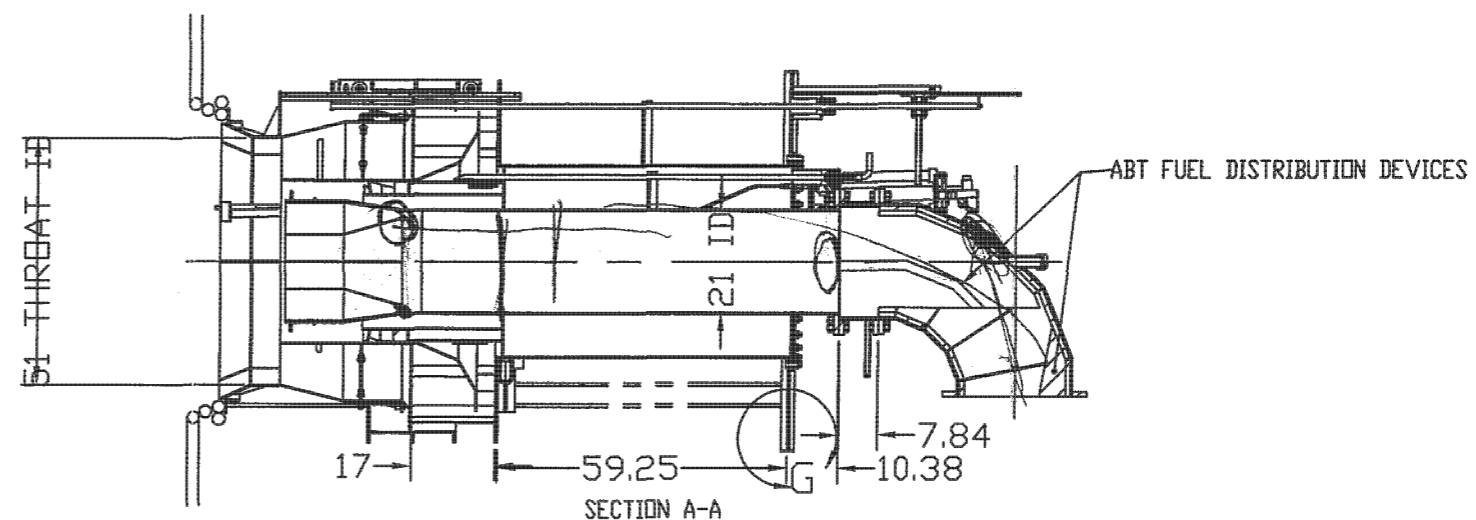
Sincerely,



George W. Cross
President and Chief Operations Officer



DEW/JKH:jmj



ITEM	DESCRIPTION	OPERATION	STROKE
A	SPIN VANE DRIVE	IN TO OPEN	5 3/4"
B	EXISTING OIL IGNITOR		
C	ABB FIBER OPTIC FLAME SCANNER		
D	DAMPER DRIVE	IN TO OPEN	16"
E	SIGHT TUBE		
F	INNER AIR ZONE DAMPER	PUSH TO OPEN	6"
G1	TIP THERMOCOUPLE JUNCTION BOX		
G2	BODY THERMOCOUPLE JUNCTION BOX		



Before Nov
CC meeting.

ABT Burner Issues
Discussion with Staff
October 26, 2005

Joel Vatski
Dan Howell

Get ABT out here!
Call Bonanza (Jerry Haske!)
Get to the bottom of this issue.

History

F3 Burner Fire

- Melt Down of Coal Nozzle
- New Burner Module on Order (delivery in late Nov.)
- Suspect erosion of nozzle as cause
- Inspected all 6 burners during U2 tube-leak outage

Elbow Damage

- F1 & F2, eroded through elbows
- F4 & F5, eroded through inner ceramic lining

Nozzles

- F6; coal erosion at 3:00 and 9:00 o'clock at exit from X-vane

Tip Damage

- Erosion at 11:00 and 1:00 o'clock positions
 - All of F tips
 - E1 E6 C2 & C5
- Cracking of tip noted in all of F, E1 and C2
- Warping of CS at tip on all of F nozzles. (Overheat in out-of-service burners)

Thermocouples

- 1/4" TC's can't be inserted into thermowells
 - Tight bends
 - Pipe rather than tubing used
- 1/16" TC's substituted
- Temperature switches disabled
- Alarms added to TC's

Nail down the design
parameters! Why are
we here. Check the
specs.

Get P&I here too!
RJM Consulting.

ABT

Reply to initial letter

- Wear parts
- Velocities higher than design conditions
- Deny warranty claims
- Invited (Tuesday) to site for U2 outage; did not send anyone
- Have sent them preliminary findings and photos

Pulverizer Issues

Biases

- High PA Flows (duct pressures up)
- Feeder biases
- Improper limits on F-row for 5-burners

Options

Classifiers

8-mill operation - Not likely to succeed per GWC

Redesign burners with ABT

Change PA flow curves for new rotating throats

Modify elbows

Other suggestions?

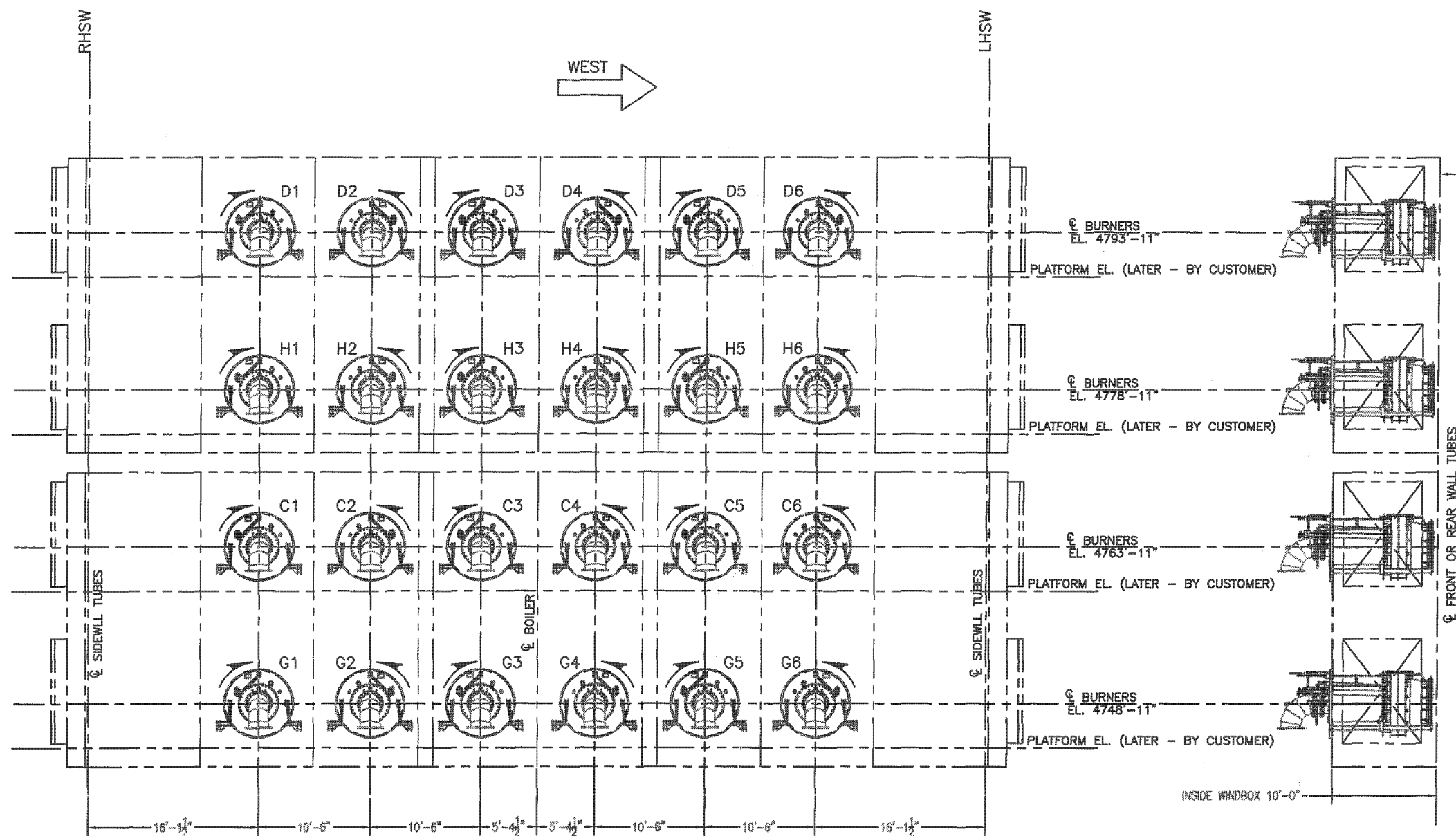
Actions

DEW committed to work w/ ABT to find out
what our problem is.

Is PA duct pressure too high?

Phil- order 6, put in F row

DISCLOSURE NOTICE:
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 2. THE STRUCTURE AND OPERATION OPTI-FLOW[®] FUEL DISTRIBUTION SYSTEM AND DUAL REGISTER ARE SUBJECT OF ONE OR MORE U.S. PATENT APPLICATIONS.



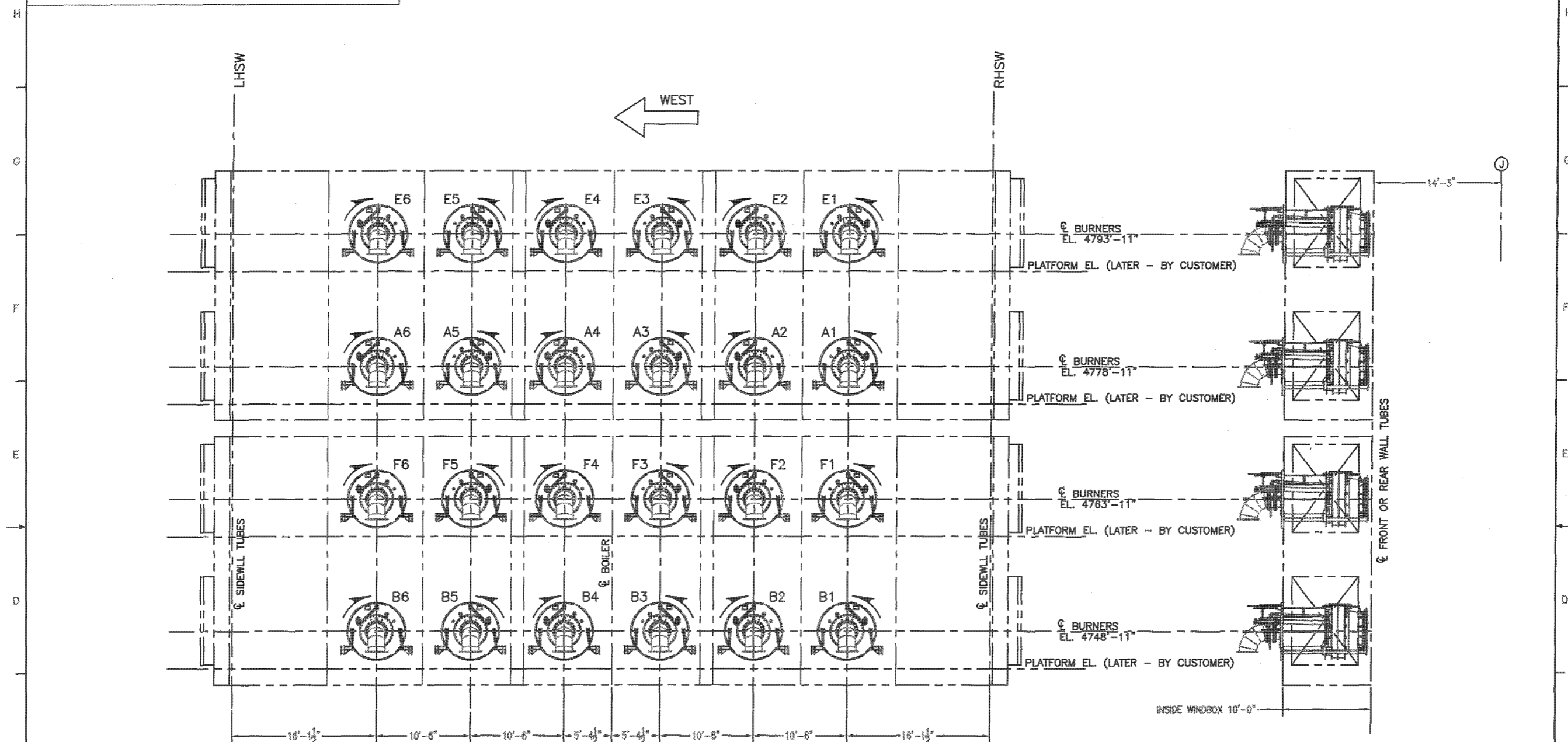
REAR WALL BURNER ARRANGEMENT
 (STANDING OUTSIDE THE BOILER LOOKING SOUTH OR INTO THE BOILER)

NOTES:
 1. CUSTOMER TO SUPPLY BURNER NUMBERS.
 2. CUSTOMER TO SUPPLY DRAWING TO SHOW ELBOW ORIENTATIONS.
 3. CUSTOMER TO SUPPLY PLATFORM ELEVATIONS.

MATERIAL:		EST WEIGHT:		REVISIONS	
SIZE:		ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED		NO.	DATE
TYPE:		FOR ALL DIMENSIONS		BY	
SUBMITTER NAME		PROJECT NAME		ADVANCED BURNER TECHNOLOGIES CORP.	
I.P.S.C.		IGS	2	OPTI FLOW BURNER	
				IGS UNIT 2	
				GENERAL ARRANGEMENTS RW	
				E 03008-100-AD1-RW	

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2. THE STRUCTURE AND OPERATION OF OPT-FLOW FUEL DISTRIBUTION SYSTEM AND DUAL REGISTER ARE SUBJECT OF ONE OR MORE U.S. PATENT APPLICATIONS.

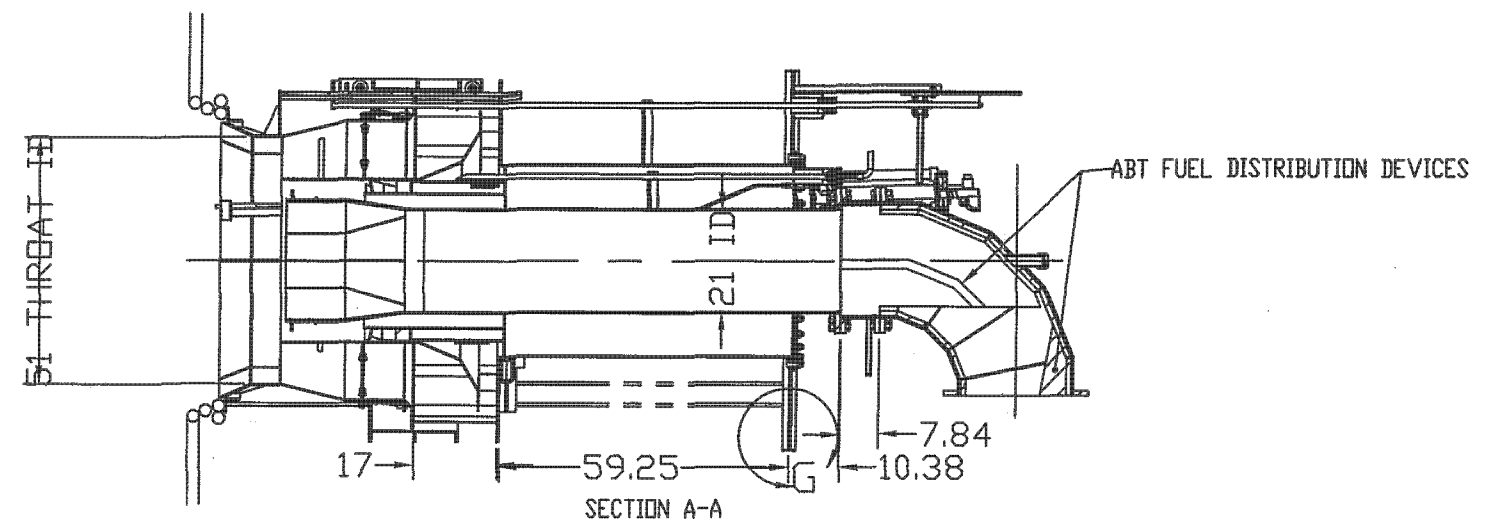


FRONT WALL BURNER ARRANGMENT
(STANDING OUTSIDE THE BOILER LOOKING NORTH OR INTO THE BOILER)

NOTES:

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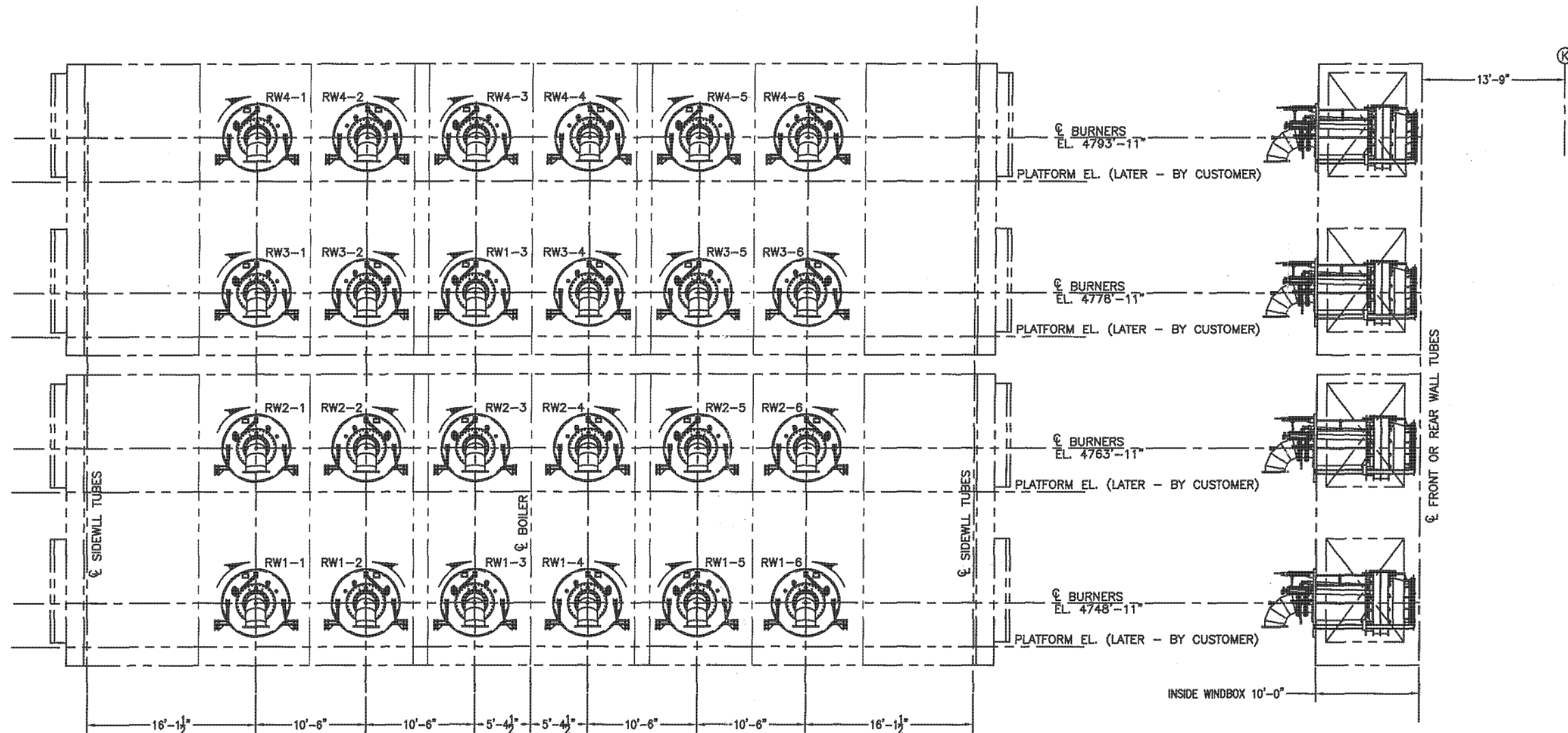
MATERIAL:		NET WEIGHT:		NO. OF CHANGES MADE		NO. OF REVISED SHEETS		REVISIONS		BY	
SIZE:		ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED		DATE		DATE		ADVANCED BURNER TECHNOLOGIES CORP.			
TYPE:		DIMENSIONS TYPICAL DO NOT SCALE DRAWING		10/24/2008		10/24/2008		OPTI FLOW BURNER IGS UNIT 2			
CUSTOMER NAME		PLANT NAME		UNIT		GENERAL ARRANGEMENTS FW		REV 1			
I.P.S.C.		IGS		2		05008-100-001-FW		REV 1			



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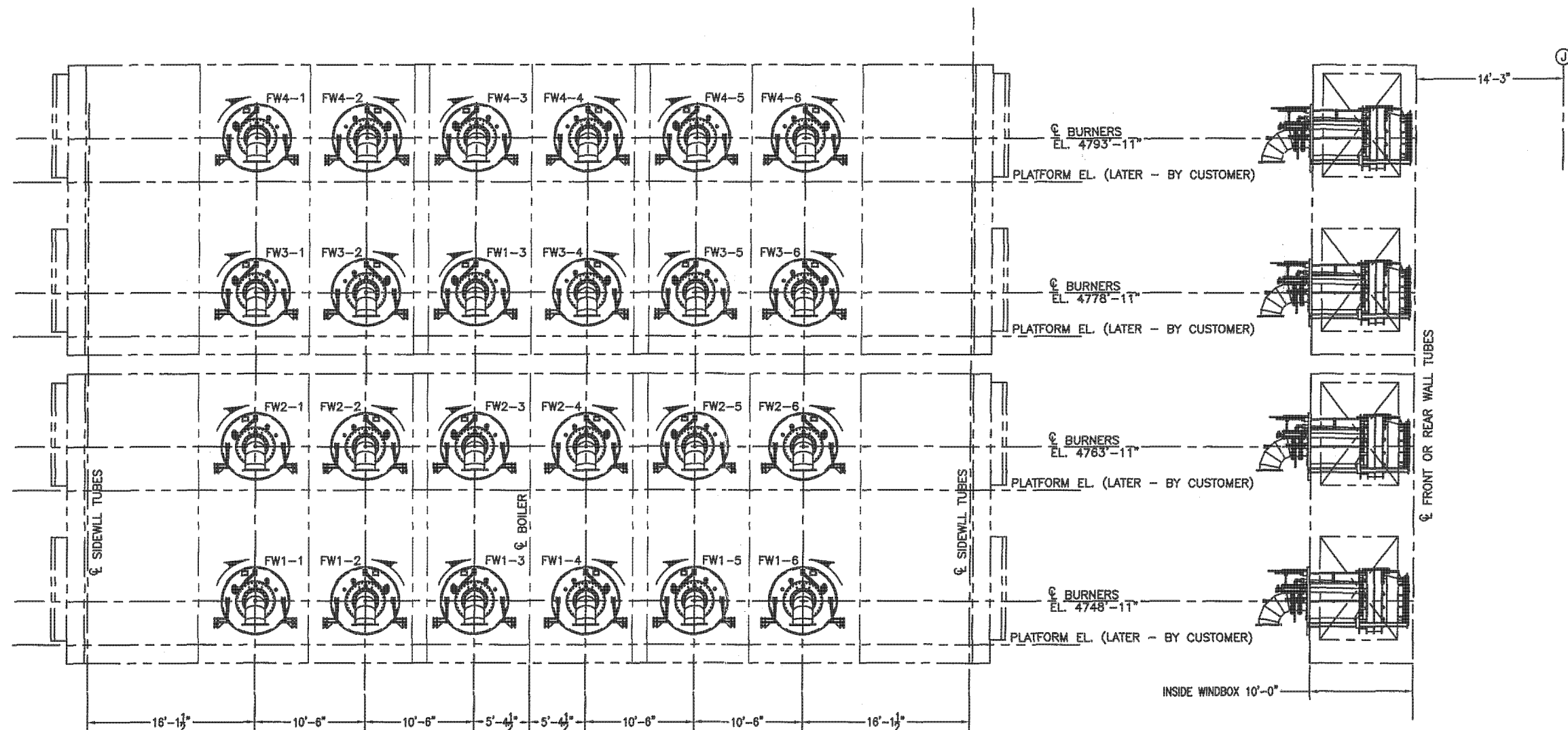


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TYPE:		DO NOT SCALE THIS DRAWING		BY	
CUSTOMER NAME	I.P.S.C.	IGS	2	ADVANCED BURNER TECHNOLOGIES CORP.	
				OPTI FLOW BURNER	
				IGS UNIT 2	
				GENERAL ARRANGEMENTS RW	
				E 03008-100-A01-RW	

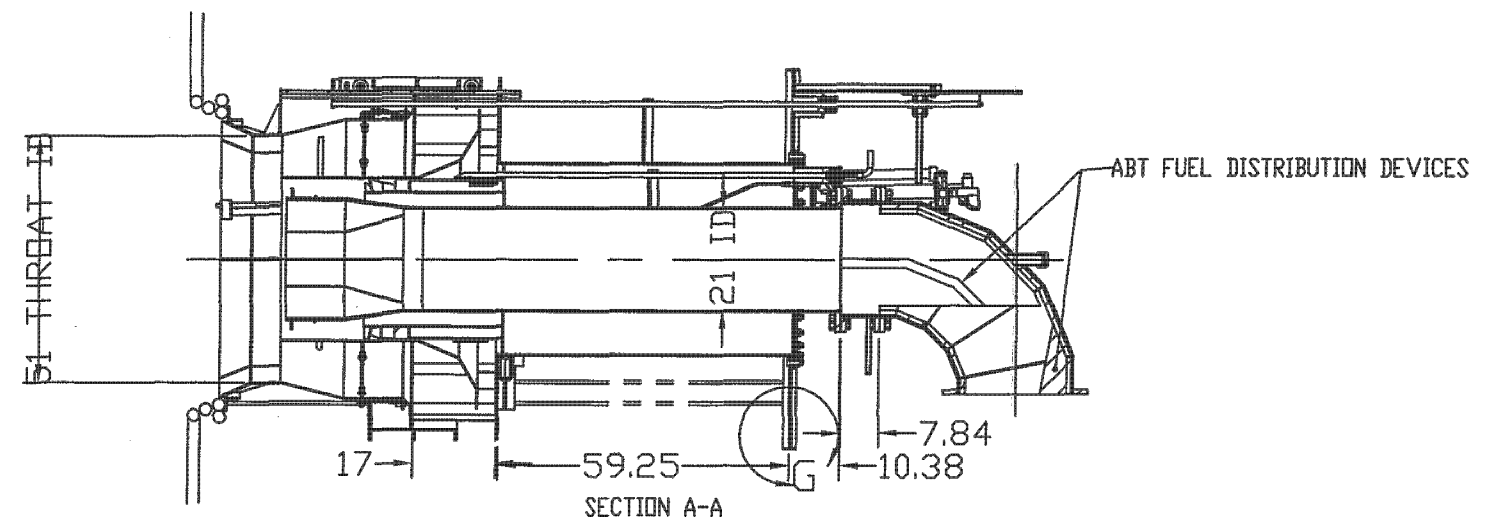
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REVISIONS		NO.	DATE	REVISIONS	BY
ADVANCED BURNER TECHNOLOGIES CORP.					
OPTI FLOW BURNER					
IGS UNIT 2					
GENERAL ARRANGEMENTS FW					
E 03008-100-AD1-FW					
MATERIAL:					
SIZE:					
TYPE:					
CUSTOMER NAME					
I.P.S.C.					
EST WEIGHT:					
ALL DIMENSIONS ARE IN					
INCHES UNLESS					
OTHERWISE NOTED					
DO NOT SCALE DRAWING					
FLAME TUBE					
UNIT					
IGS					
2					



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From: Dean Wood
To: sal@advancedburner.com
Subject: Fwd: U2 Outage F Burner Inspection

Sal,
This is a raw copy of the preliminary report from last weekends outage inspection. No editing, no punches pulled. There are more photos but these are the most significant. If you need more information, please contact Garry Christensen at garry-c@ipsc.com and copy me on the e-mail. Garry will be taking the lead on burner issues as Phil Hailes will be focusing on Turbine and Generator issues.

We have not quantified air flows on the Unit 2 F row yet but will work on that.

Anything you can add to help us solve these issues is appreciated.

Thanks,

Dean

>>> Aaron Nissen 10/15 8:45 PM >>>

U2 Outage F Burner Inspection Summary

Reason- F3 Burner Fire (which resulted in the isolation of this new ABT burner)

When- Inspection conducted during U2 Boiler WW Tube Leak (on 2 1/2 floor) 10/12/2005

What- Removed burner elbows to inspect coal nozzles & tips and repair damage found

Inspection- Phil Hales & Aaron Nissen

FOUND: (referenced attached pics)

F3 Burner- major meltdown of the coal nozzle into the outer sleeve. 40% of the entire length of the nozzle has melted (bottom right). Due to the damage on the outer sleeve, the burner assembly needs to be replaced (during next Spring U2 Outage), although the air register assemblies look intact.

Coal Nozzles- coal erosion found in the 3:00 & 9:00 clock positions on all nozzles (below where the X-vane cross piece rides)

This erosion is within the first 18" of the nozzle. F6 nozzle, left side, had a hole eroded completely through.

Nozzle tips- major erosion and holes in the flowered tip (designed for coal staging), plus cracks in the "high tech alloy". Near impossible to weld up and due to high temps from furnace flame, impractical to RTV or nordbak/ceramic patch. Also the weld interface from the nozzle to the tip has creep damage (warped)

Coal Elbows- major erosion at the top of the nozzle. F1 & F2 already had eroded thru the original ceramic lining and thru the elbow material requiring external patches. F2 had a hole already in the external patch. F4 & F5 had holes eroded in the ceramic, but not yet thru the elbow metal. F6 has not yet eroded through the ceramic.

REPAIRS:

Coal Nozzles- ALL (except F3) coal nozzle sidewalls weld repaired at (3:00 & 9:00 clock position)

Coal Elbows- ALL (except F3) elbows were ceramic (nordbak) repaired at the very top (holes in ceramic) F2 also had an external patch installed due to a hole in the 1st external patch

NOTE: Place F pulv back in-service LAST (to allow ceramic Nordbak to cure in elbows- 24 hr cure time)

ALSO- Maintenance closed several of the Burner Isolation gates locally (originally weren't closed as part of the clearance). Operations needs to verify all iso gates are open before placing pulv I/S (F1 & F2 were closed, need to check others).

NOTE: U2 F Pulv will be coming O/S in the next several weeks for major overhaul and NEW rotating throats

However, during this time will be taking primary air flow measurements to check line velocities.

FUTURE: U2 Spring Outage- F3 burner will need to be replaced, as well as all other coal nozzles, preferably ceramic lined and new designed nozzle tips. Elbows also needed revamped or better yet replaced (so have one spare set to modify and rotate), also X-vanes needed replaced or modified (they aren't doing their job).

Final Inspection Report will follow

rest of pics located are at the following address:

N:\Current\Outages\2005 Outages\U2 2005 Unscheduled Outages\
05-1010 U2 external Tube Leak 2.5 NW LVL\Burner Row U2 F Inspection\pics

CC: Christensen, Garry

IP7021188